AWIPS OB3 Release Notes

Section I - New Functionality in OB3

1.0   D2D/TEXT/OTHER APPLICATIONS

1.1   GOES Sounder Imagery

- GOES Sounder Imagery are now available. Data processing and storage are performed by the *Satdecoder* on PX1. Displays are available from the GOES Sounder DPI + Imagery cascading menu in the Satellite menu.

1.2   Local Storm Report (LSR)

- Backup functionality is now available for surrounding CWAs. This enables sites to issue LSR products for surrounding sites when necessary. A Site Back-up section is now available in the Configuration tab of the LSR GUI. Applying a backup site adds that sites locations to the LSR city list; canceling the site removes those locations from the list.

- In the Event Log tab, there is a new Sort option to sort events in the window, and a new Auto-update option, which, when enabled, automatically adds events entered by other users on-site to the list of events in the users window (i.e., it automates the Fetch Events function). However, while in this auto-update mode, it is not possible to record LSR events. The auto-update mode must first be turned off before managing LSR events.

- It is now possible to issue a "summary" LSR. Once a group of events has been issued as part of an LSR product, users can issue a summary LSR containing events that may have been transmitted in separate LSR products by simply selecting a radio button in the Preview Selected Events for transmission window. All that appears in the actual product header is: "Local Storm Report....Summary", instead of: "Local Storm Report".

1.3   NCEP

- The ceiling/visibility/weather plot from the forecast soundings is now available. Displays are available from the Sounding-derived plots cascading menu in the HPC section of the NCEP/Hydro menu. Please note that separate algorithms are used to compute the cloud layers and the cloud base, and that the cloud base algorithm always assigns a base if there is convective precipitation forecast, so there will be inconsistencies at times in the plots.

1.4   QuikSCAT

- BUFR-format QuikSCAT (Scatterometer) marine surface wind data are now available. Data processing and storage are performed by the *BufrDriver poes, quikscat* process (the

child of the *DataController COMMS_ROUTER BufrDriverCont4* process) on PX2. Displays are available from the Scatterometer Winds menu in the Satellite menu.

1.5   Radar

In OB3, the general organization of radar tables and RPS lists has changed a great deal in support of new Volume Coverage Patterns (VCPs) and ORPG Builds that will be coming on line in the near future. To become familiar with these changes, it is strongly recommended that the site's AWIPS/radar focal points, and any users involved in modifying or maintaining any radar functionality on-site, read the /awips/fxa/data/localization/documentation/radarLocalization.html and directives.html documents for more detailed information. These documents are available by clicking on "Localization documentation" in the AWIPS General Information section of the AWIPS System Monitor, then scroll down to radarLocalization.

● **Color Tables**
        - The display now uses generic selectors that load 8-bit (256 level) data, if available, filling in with 4-bit or 3-bit data as necessary. For this reason, the old 4-bit (16 level) and 3-bit (8 level) products are now demoted to submenus, since you generally will not need to use them.
        - If you have been using 4-bit radar products in your procedures, these will not be affected by these changes, although you may want to update these bundles to use the new 8-4-3-bit data. However, if you have been using 8-bit products (formerly DZ and DV), the procedure update program will erase the color table stored in the bundle (actually, replace it with all zeroes), because the new data-value-to-color mapping used by the combined 8-4-3-bit data is not compatible with the old products. As a result, the default color table will be used with these displays. You will not notice the difference in most cases, but if you have been using custom tables, you will see that they are no longer being used.
        - Rather than have users recreate custom color tables and procedures, you can save a bit of work by overriding the default color tables using localization to resolve this. This is accomplished using radar color table directives, as described in the radar localization documents (/awips/fxa/data/localization/documentation/radarLocalization.html and directives.html). These are available by clicking on "Localization documentation" in the AWIPS General Information section of the AWIPS System Monitor, then scroll down to radarLocalization. Note that if you override the color tables, this will affect all displays. In general, to overcome this color table problem via localization, the site must set a directive in the LLL-mainConfig.txt file and run *./mainScript.csh - radar*. Then, any

bundle that loads radar data will use the color table specified in the directive, rather than the default color table. **(DR 13888)**

- **RPS Lists**
   - Previously, WSR-88Ds operated generally in either "storm" or "clear air" modes, and RPS lists were named accordingly - e.g., KDDC.clear-air or KMLB.storm in /data/fxa/radar/lists, or user-saved /data/fxa/rps-lists/rain.rps. To accommodate the many new VCPs now available, the RPS list file name now includes the VCP, e.g., KFTG.storm.VCP121 or scanffmp.VCP45.rps. The RPS list editor application now asks you to select a VCP when creating a new list, and it saves the file with a VCPxx.rps name. In addition, it will not open any exiting file that lacks the VCPxx name string. In order to continue using any existing RPS files in rps-lists/, it is necessary to manually rename them. You will need to select an appropriate VCP number to add to the file name.
      - *Select the Right VCP*
   The elevation angles of the given VCP must cover the angles found in the RPS list; otherwise, there may be editing problems. Elevation angles for all currently-available VCPs are listed in $FXA_NATL_CONFIG_DATA/nationalData/elevationLists.txt. In most cases, VCP11 can be used for storm lists and VCP31 for clear air, but you should compare the actual tilts found in the RPS list with the contents of elevationLists.txt to select the VCP.
      - *Rename the RPS list files*
   Once the proper VCP is identified, rename the files in /data/fxa/rps-lists. For example,
   cd /data/fxa/rps-lists
   mv rain.rps rain.VCP11.rps
   Now this file will be accessible via the RPS list editor program.
      - *Update RPS lists*
   One other change in OB3 is that 8-bit Z and V products, known since 5.1.2 as DZ and DV, are now called simply Z and V, but with 256 data levels. Using the RPS list editor, you will need to add appropriate new entries to your lists, then delete the outdated items.

- The RPS List Editor View menu now lists all the new VCPs, not just 'clear air' and 'storm mode'. In the One Time Request window, the elevations available for selection now depend on the time requested. When the "Latest" Time is selected, the current elevation angles of the RPG are provided. When the "Current" Time is selected, the default elevation angles are provided.

- Instead of each individual tilt being on the menu, and the resultant sparse selection of "live" items, depending on the VCP in use, the menu now lists "tilt bins" which will be more generally populated by current data. In addition, a change from, say, 3.5 to 3.4

degree tilt with a VCP change will be transparent, with a loop selecting the tilt needed for each frame from within the bin.

- New radar products include Digital VIL (DVL), Enhanced Echo Tops (EET), and Digital Storm Total Precipitation (DSP). New color tables to support these are found in the Radar color table submenu: Digital VIL, Enhanced Echo Tops, and Storm Total Precip. Also available are OSF versions of DVL and DSP tables.

- Combined VWP-model soundings (via the Volume Browser) are now available for each volume scan, with the model data time-interpolated to the VAD winds time. Model winds are used above the top of the VAD stack to complete the profile. (Note that the model data are from the grids, not the point soundings.)

- AWIPS can now receive and process compressed BZIP2 products. Some radar products, such as high resolution (8-bit) velocity and reflectivity, are compressed using the freeware BZIP2 before being sent to AWIPS. AWIPS can now decompress these products upon receipt and process and store them successfully.

- Radar "dialout" now uses the WAN to acquire the requested radar product(s), rather than actually dialing a telephone number. This is expected to improve reliability, increase communications bandwidth, and shorten overhead time for connection and reset. To the user, the functionality will operate basically the same as in past releases. This feature will be activated on-site after the OB3 installation.

1.6 System for Convection Analysis and Nowcasting (SCAN) and Flash Flood Monitoring Program (FFMP)

- SCAN will alarm for absolute thresholds. Users can now provide cell attribute thresholds that, when met or surpassed, will trigger an alarm. Rate of change alarms can also still be set.

- SCAN will alarm for counties that contain a significant storm cell (based on user definition), but no active warning. SCAN checks the text database for issued Severe Weather and Tornado warnings. If user-defined conditions are met and there is no corresponding warning in effect, then the SCAN Storm Cell Table will inform the user. This will not help with lead time, but it could help with missed events. This can be turned on/off and configured by the user.

- In the FFMP Worst County Display, when calculating county values of rate, accumulation, FFG, ratio, and difference, there is an inherent logic problem that cannot

be surmounted. Either the data displayed in the Basin table for counties will be mathematically sound or it will represent the actual 'worst' basin within that county. In the past, the default was the mathematically sound solution. In OB3, the user can now choose which solution to use.

● The forcedFFG command line application has been replaced with a full graphical user interface. This ForcedFFG GUI allows the user to easily provide custom FFG values to FFMP.

1.7 *S*ystem on *A*WIPS for *F*orecasting and *E*valuation of *Se*as and L*ake*s (SAFESEAS)

● SAFESEAS is a set of AWIPS applications which continuously monitor marine and adjacent overland conditions for specific marine weather hazards. It automatically alerts the forecasters whenever such conditions are detected. SAFESEAS provides capabilities to display observed marine threats in ways that help forecasters focus on what they consider to be most important.

● SAFESEAS consists of four monitoring/display components and three configuration components. The monitoring/display components are the:
a) SAFESEAS Monitor,
　　　　The SAFESEAS Monitor automatically monitors observations in the WFO-configured monitoring area for conditions that are hazardous to marine interests. It regularly evaluates and updates a single, overall threat level for the monitoring area. This threat level is displayed near the upper right corner of the D-2D display as a colored-coded icon containing a black anchor. The icon's background color represents the threat level.
b) SAFESEAS D-2D Plan-View Plots,
　　　　The SAFESEAS D-2D Plan-View Plot displays the current METAR plot, fixed buoy plot, drifting buoy and ship report plot, and MESONET plot, all loaded together as a multi-load graphic covering the WFO-configured monitoring area. The SAFESEAS plot is available from the SAFESEAS menu in the Maritime section of the Obs menu.
c) SAFESEAS Tabular Displays,
　　　　The SAFESEAS Threat Level Zone/County Table loads in its own window when the SAFESEAS D-2D Plan-View Plot is displayed. The SAFESEAS Threat Level Station Table can be displayed from this table by selecting an Area_Id.
d) SAFESEAS Trend Plot.
　　　　The trend plots display a meteogram of a selected variable, or a composite meteogram of the values of the variables comprising a selected product, for single

stations. It is displayed by selecting mouse button two on a parameter in the SAFESEAS Threat Level Station Table.

The configuration components are the:

a) SAFESEAS Monitoring Area GUI

The SAFESEAS monitoring area set-up GUI allows the user to configure the zones and counties included in the SAFESEAS monitoring area, and to specify the fixed-location stations associated with each zone or county. The GUI is launched from the "Configure Monitor Area Data" menu item in the "SAFESEAS Editors" menu of the "AWIPS Startup Menu" launched from the AWIPS menu icon.

b) SAFESEAS Monitor thresholds GUI,

The SAFESEAS monitor thresholds editing GUI allows the user to specify the variable thresholds used by the SAFESEAS monitor to determine the threat level for each variable. The thresholds are zone-specific, that is, they may vary from zone to zone. The GUI is launched from the "Configure SAFESEAS Monitor Thresholds" menu item in the "SAFESEAS Editors" menu of the "AWIPS Startup Menu" launched from the AWIPS menu icon.

c) SAFESEAS Configure Display Thresholds GUI.

The SAFESEAS Configure Display Thresholds editing GUI allows the user to (1) enter and save new sets of display thresholds, (2) select and apply a previously-defined set of display thresholds for current use, and (3) edit a set of display thresholds. The display thresholds are used in the zone and station tables when determining threat levels. The thresholds are zone-specific, that is, they may vary from zone to zone. The GUI is launched from the "Configure Thresholds" button near the top of the SAFESEAS Threat Level Zone/County Table.

● Data processing and monitoring are performed by the new *DataController COMMS_ROUTER SScontroller* and the new *SFSfacServer* and *SSprocessor* processors on AS1, which are children of the *SScontroller*.

1.8   Text Workstation

● Several new commands are available for text retrieval. These can be run only on the DS, and were added to support the Watch by County Notification (WCN) function. **(DR 12696)**

The following capabilities were added:

1. Retrieve all products stored in the text database for the last number of hours based on AFOS ID.

2. Retrieve all AFOS products stored in the text database for the last number of hours based on NNNXXX for AFOS node IDs (use 000 as a wild card CCC).

3. Retrieve all products stored in the text database for the last number of hours based on the combinations of WMO ID and site.

They can be utilized using the following textdb commands:
1. textdb -r A:HH CCCNNNXXX - Read all versions of product CCCNNNXXX from the last HH hours
2. textdb -r A:HH 000NNNXXX - Read all versions of product NNNXXX at all nodes from the last HH hours
3. textdb -rw <wmo_id> -rs <site> -rh <hours>
4. textdb -rw <wmo_id> -rh <hours>
5. textdb -rs <site> -rh <hours>

1.9   Volume Browser/Grid Products

● Numerous additional parameters are now available via the Volume Browser, including SWEAT index, several CAPE fields, CIN, non-QG (Petterson) frontogenesis, and forward propagating Corfidi vectors. For ensembles, new fields include wind speed mean/std dev and accumulated precipitation. Other new fields are virtual temperature, mixing ratio, and wind direction. Some new pressure layers are added, along with additional AGL choices and a few equivalent potential temperature levels. Also new are time series of low-, mid-, and high-level cloud cover from model soundings, which can be displayed using the Layers menu in the Planes section while in Time Series mode.

● The AVN and MRF names have been retired, with all such grids now referred to as GFS. Also, grids are now titled with their delivered resolution (e.g., ETA40, GFS180). In some cases, however, higher-resolution components are available, such as Eta precipitation, or different resolutions are used at different time projections, such as >168 hours on the GFS (old MRF). The product label will show the actual resolution of each grid used. **(DR 13735)**

The table below matches the new grid name used in OB3 with the old grid name used in OB2 and before. The new grid name gives the model name and the resolution in kilometers, e.g., GFS360 is the GFS model at 360 km. More information on each grid can also be obtained from the "info" pages linked to the data monitor Grid page on the Netscape monitor.

new name	resolution (km)	directory (../Grid/SBN/netCDF/..)	Old name
GFS360	360, 120 hr	../NHEM201/AVN/	AVN Northern Hemispheric
GFS360	360, 240 hr	../NHEM201/MRF/	MRF Northern Hemispheric
GFS180	180, 120 hr	../CONUS202/AVN/	AVN North America
GFS180	180, 240 hr	../CONUS202/MRF/	MRF North America
GFS90	90, 120 hr	../CONUS213/AVN/ - this one is on the AWIPS North American grid	AVN North America (dbl res)
GFS80	80, 120 hr	../CONUS211/AVN/ - this one is on the AWIPS CONUS grid	AVN CONUS
NGM180	180	../CONUS202/NGM/	NGM North America
NGM90	90	../CONUS213/NGM/	NGM North America (dbl res)
NGM80	80	../CONUS211/NGM/	NGM CONUS
Eta80	80	../CONUS211/Eta/	Eta
Eta40	40	../CONUS212/Eta/	Eta CONUS
Eta40clip ("Meso")	40	../CONUS212/MesoEta/	MesoEta (dbl res)
Eta20clip ("Meso")	20	../CONUS215/MesoEta/	MesoEta (quad res)
Eta12	12	../GRID218/Eta/	Eta GRID
RUC80	80	../CONUS211/RUC/	RUC
RUC40	40	../GRID236/RUC2/	RUC2

● Additional tropical cyclone wind grids are available on an event-driven basis. These grids (Central Pacific/Hawaii and Western Pacific/Guam areas) are primarily for use in IFPS, but are also accessible for display from the Volume Browser (source HawHurWind and GuamHurWind). A new wind direction depiction is also available to use with these grids.

2.0 INTERACTIVE FORECAST PREPARATION SYSTEM (IFPS)/WATCH WARNING ADVISORY(WWA)

- WWA primary and secondary backup is now easily available from the menu.

- The WCN mode can now be easily changed from the menu.

- With IFPS 15, the IFPS processes *ifpServer* and *ifpServerWatcher* have been moved from LX1 To PX1. The *sliderParameterSrv* and *sirssrv* processes are no longer persistent processes.

- WWA: The FORMAT option in wouCong.txt is automatically set to "ON" after the OB3 installation. **(DR 13812)**
  Problem: The FORMAT option in the wouCong.txt file is used by *ingest_wou* to determine whether to format the WCN from an ingested WOU and send it to the text workstation. The WOU and WCN are currently test products, and this functionality is not being tested by all sites at this time.

  Side effects: The *wou_conf.sh* script, used to set up the WCN Backup Mode start menu, is run during the OB3 installation and hardcodes this value to "ON". This could cause problems if a test WOU is ingested at sites that have not participated in the WCN tests. They will not know what the WCN product is that appeared on their text workstation or why it appeared, and might mistakenly issue the product since it is related to severe weather.

  If your site is not testing this functionality and needs to deactivate it:
  1) Start the WWA Admin application.
  2) Select Configuration (wrench icon button)
  3) Select Configuration type "Watch Outline Update (WOU)/WCN Formatting"
  4) Deselect "Format" (once you deselect it, it will be grey)
  5) Select "Save"
  6) Select "Save Default"
  7) Select "Exit"

3.0 HYDROLOGY

3.1 Ensemble Streamflow Prediction Verification System (ESPVS)

- Ensemble Streamflow Prediction Verification System (ESPVS) data generation is now

available. ESPVS provides software for generating historical Ensemble Streamflow Prediction (ESP) forecasts and for analyzing the probabilistic nature of ESP forecasts.

3.2 HydroBase

- A new feature has been added to the Data Ingest pull down menu to allow any user to start and stop the *shefdecoder*. There are four cases of changed data that require a restart of the *shefdecoder* in order to accept the changes: Add/delete location, Modify QC limits, Modify alert/alarm limits, and Modify adjust factor info. The window's features are available to all users that can access HydroBase, not just the oper user.

- The geographic overlay data processing has been enhanced to improve the speed of the geo overlay displays in HydroView/MPE. This involved the creation of binary versions of the geo overlay data, to complement the GeoArea and GeoLine storage methods. In Hydrobase, the Add, Update, and Delete buttons were deleted from the Setup|Areal Definitions window. This will prevent cases where the GeoArea info can be updated without corresponding changes made to the new binary renditions of this file.

- Certain scrolled lists, which were converted from option menus to scrolled lists in OB2, have been modified to ensure that they always have a value that is selected, even if only a default one.

3.3 HydroView/MPE

- The speed with which the overlays are drawn on Hydroview/MPE has been increased. Binary file versions of the Basin, Streams/Lakes, and Highways/Roads overlays may now be created using the Areal and Vector Definition options from the Setup Menu on Hydrobase. When Basin, River, Stream, or Highway data are imported into the IHFS database, binary file versions of these overlays are automatically created. In support of this change, a new overlay configuration file was provided which uses the binary files as the default, where appropriate.

- A new feature has been added to MPE processing to support Precipitation gage quality control. A new program was added to extract lightning strike data, and these data are used in the MPE FieldGen application to determine outlier values via a spatial consistency and multi-sensor consistency check.

- On the Gage menu located under the MPEcontrol menu on Hydroview/MPE, a new option "Gage Color" has been added. This leads to a separate menu which has the following options: Solid Color, Contrast Color, Color By QC, Color By Value. This

allows the user to set how the ID and value labels of the MPE gages are be colored. Solid Color draws all of the labels in SandyBrown. Contrast Color makes sure that the labels are colored so that they contrast with their background. Color By QC colors the gages according to the results of their quality control. Color By Value colors the labels based on the gage's value. This uses the same color scheme as the product the gages are being overlaid on (except if the product is PRISM, Local Span, Local Bias, Height, or Radar Coverage - in these cases the RMOSAIC color scheme is used). Only one color option may be selected at a time. Contrast Color is the default.

- A new feature has been added to allow the user to specify a minimum precipitation value to be used in the drawn polygon (through the Draw Polygon feature) plus use any radar mosaic, observed gage or pseudo gage values that may exceed the minimum value. In other words, the user can specify a minimum value for all grid bins in the polygon field, but use any other values that may be greater than the specified minimum. Also, there is now a reverse feature for maximum, and a comparable feature for multiplying all values. These three options allow raising, lowering, or scaling of the field.

3.4   Point Control

- A new feature has been added to allow the user to pre-define, store, and retrieve point control option sets from the PointDataPresets database table.

3.5   RiverPro

- RiverPro has been modified to ignore probabilistic forecast values.

4.0   SYSTEM

4.1   Crons

- The ifps and oper crons have been added to PX1 and PX2.

- An ifps cron has been added to PX2.

4.2   Freeware/COTS Software

- PGI Fortran v4.1 (Linux buildtime)
- gcc v3.2.3 (HP and Linux)
- binutils 2.13.2.1 (Linux build and runtime)

- python v2.2.2 (HP and Linux)
- blt 2.4u (HP and Linux)
- num py 21.3 (HP and Linux)
- sci py 2.2 (HP and Linux)
- Pmw 1.1 (HP and Linux)
- udunits v1.11.7 (HP only, Linux already at 1.11.7)
- libpng v1.0.12 (HP only, Linux already at 1.0.12)
- perl v5.8 (HP and Linux build and runtime)
- swig v1.3.19 (HP and Linux buildtime)
- netCDF v3.5.0 with Mike Romberg patch (HP and Linux build and runtime)
- zlib 1.1.4 (HP and Linux buildtime)
- ispell 3.1.20 (Linux runtime, HP already at 3.1.20)
- sqlcmd v72 (Linux and HP runtime)
- bzip2 1.0.2 (Linux and HP buildtime)
- tktable 2.8 (Linux runtime)
- openssh 3.6.1p1 (Linux and HP runtime)
- openssl 0.9.7c (Linux and HP buildtime)
- fping-2.4b2 (2.4b2_to) (Linux and HP runtime)

4.3   Processes

- The *processSummary.pl*, *MakePROCpage*, and *MakeSUMMpage* processes have been moved from AS1 to PX1.

- The *DataController TextCont3.config* and *binLightningDecoder* processes have been moved from DS1 to PX2.

4.4   Process Monitoring

- The CPU monitor, available from the Ingest Processes section of the Netscape System Monitor, now includes the Linux workstations.

- The DiskUsage Data section of the Netscape Data Monitor now monitors the PXs, LXs, and AX. **(DR 12661)**

4.5   Purge

- Separate fxa-data-addons.purge files have been created for the DS and the PX, named fxa-data-addons.purge.ds and fxa-data-addons.purge.px respectively. The master purge

scripts have been updated to take this scheme into account. The *preinstall_OB3* script run during install automatically copies any existing addons files to the new names. **(DR 12649)**